Patent Claims

1. Material for forming a thin film whose conductivity can be set in the range of 10^{-4} S/cm to 10^{-6} S/cm and whose thickness is between 10 and 300 nm, with the material comprising a mixture of at least two different fractions of a functional polymer, namely a first fraction that is based on a dispersion of the functional polymer in a first solvent in which the functional polymer is at least partly dispersed, and a second fraction of functional polymer that is based on a true solution of the functional polymer in a second solvent, with the two fractions being processed, dispersed, and/or dissolved together, with the ability to set the conductivity of the thin film composed of this material by the ratio in which the at least two fractions are mixed.

2. Material pursuant to claim 1 that contains an additional third solvent.

3. Material pursuant to one of the claims 1 or 2 that is essentially free of the first and/or second solvent and/or dispersing agent of the underlying fractions.

4. Material pursuant to one of the preceding claims in which the functional polymer comprises PEDOT or PANI.

5. Material pursuant to one of the preceding claims in which the functional polymer is present as a copolymer or blend that includes PSS.

6. Material pursuant to one of the preceding claims in which the first solvent includes water or another component with high polarity in which the functional polymer is essentially insoluble.

7. Material pursuant to one of the preceding claims in which the second solvent is ethanol or another low-boiling polar solvent, preferably a polar protic solvent that can develop hydrogen bridge bonds.

8. Material pursuant to one of the preceding claims in which the third solvent is different from the first and/or second solvent.

9. Material pursuant to one of the preceding claims in which ethylene glycol or another alcohol is used as a third solvent, especially including mixtures of several alcohols, and/or alcohols with a carbon content from C4 to C10, branched and unbranched, and also polyfunctional alcohols or mixtures thereof, and mixtures with water, with special preference glycol and glycerol.

10. Method for preparing a material for a functional layer with a 10^{-4} S/cm to 10^{-6} S/cm maximum thickness of 100 nm [*sic*], in which a mixture consisting of two different fractions of a functional polymer is combined, in a solvent as the case may be.

11. Method pursuant to claim 10 in which a third, high-boiling solvent is added to a dispersion of the functional polymer as the first fraction and a solution of the functional polymer as the second fraction, and the lower-boiling solvents are then removed by distillation so that ultimately the different fractions of functional polymer without their own solvent essentially constitute the material in the third, high-boiling solvent.

12. Method pursuant to one of the claims 10 or 11 in which the high-boiling solvent is added in the same amount as that of each fraction that is present.

13. Preparation of a thin film for an OLED with conductivity that can be preset, consisting of a material pursuant to one of the claims 1 to 9, with one of the following techniques being used: spin coating, screen printing, offset printing, flexo printing, spray coating, roller coating, ink jet printing, stencil printing, or blade coating.

14. Use of the material pursuant to one of the claims 1 to 9 in OLEDs.